TeleWell WLAN 54Mbps
32-bit PCI Card

User's Manual

Version: 1.1

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Revision History

Version	Date	Notes
1.0	October 16, 2003	Initial Version
1.1	October 27, 2003	Updated Features/Benefits, Specs, package contents

1 Introduction

The High-Speed Wireless Cardbus Adapter is the most convenient way to let you put a desktop/notebook computer almost anywhere without the hassle of running network cables. Now you don't need to suffer from the drilling holes and exposed cables. Once you are connected, you can do anything, just like the wired network. The High-Speed Wireless Cardbus Adapter operates seamlessly and simultaneously in both modes of 2.4GHz frequency spectrum supporting the 802.11b (11Mbps) and the 802.11g (54Mbps) wireless standards. It's the best way to add wireless capability to your existing wired network, or add bandwidth to your wireless installation.
To protect your wireless connectivity, the High-Speed Wireless Cardbus Adapter can encrypt all wireless transmissions through 64/128/152-bit WEP data encryption. Dynamic Frequency Selection (DFS) puts your network on the cleanest channel in your location. With the High-Speed Wireless Cardbus Adapter, you will experience the best wireless connectivity available.

1.1 Features & Benefits

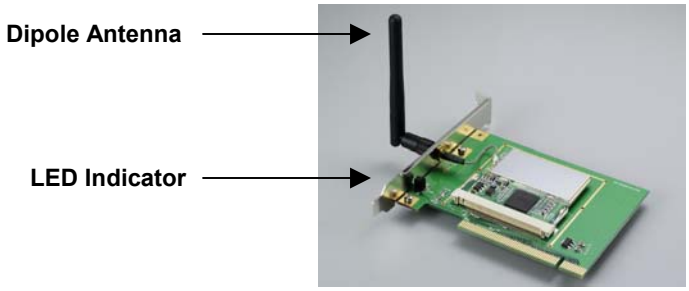
Features	Benefits
High-speed data rate up to 108 Mbps	Capable of handling heavy data payloads such as MPEG video streaming.
Up to 152-bit WEP data encryption and TKIP	Powerful data security.
IEEE 802.1x client support (optional)	Enhances authentication and security.
Multi-country roaming (802.11d) support	Automatically adjusts regulatory domain to operate in different countries.
Advanced power management	Low power consumption in power saving mode.
TPC (Transmission Power Control) support	TPC offers flexibility to adjust RF output power.

1.2 Package Contents

- One PCI Card
- One 2.4Ghz Detachable Antenna
- One Installation CD
- One Quick Installation Guide

1.3 PCI Card Description

The PCI card is a standard PCI card that fits into any 32-bit PCI slot. The PC card has a LED indicator and one antenna.



1.4 System Requirements

The following are the minimum system requirements in order to use the PCI card.

- PC/AT compatible computer with a 32-bit PCI slot.
- Windows 98/ME/ /2000/XP operating system.
- 300 MHz or higher processor
- 32 MB or greater memory

1.5 Applications

The wireless LAN products are easy to install and highly efficient. The following list describes some of the many applications made possible through the power and flexibility of wireless LANs:

a) **Difficult-to-wire environments**
There are many situations where wires cannot be laid easily. Historic buildings, older buildings, open areas and across busy streets make the installation of LANs either impossible or very expensive.

b) **Temporary workgroups**
Consider situations in parks, athletic arenas, exhibition centers, disaster-recovery, temporary offices and construction sites where one wants a temporary WLAN established and removed.

c) **The ability to access real-time information**
Doctors/nurses, point-of-sale employees, and warehouse workers can access real-time information while dealing with patients, serving customers and processing information.

d) **Frequently changed environments**
Show rooms, meeting rooms, retail stores, and manufacturing sites where frequently rearrange the workplace.

e) Small Office and Home Office (SOHO) networks
SOHO users need a cost-effective, easy and quick installation of a small network.

f) Wireless extensions to Ethernet networks
Network managers in dynamic environments can minimize the overhead caused by moves, extensions to networks, and other changes with wireless LANs.

g) Wired LAN backup
Network managers implement wireless LANs to provide backup for mission-critical applications running on wired networks.

h) Training/Educational facilities
Training sites at corporations and students at universities use wireless connectivity to ease access to information, information exchanges, and learning.

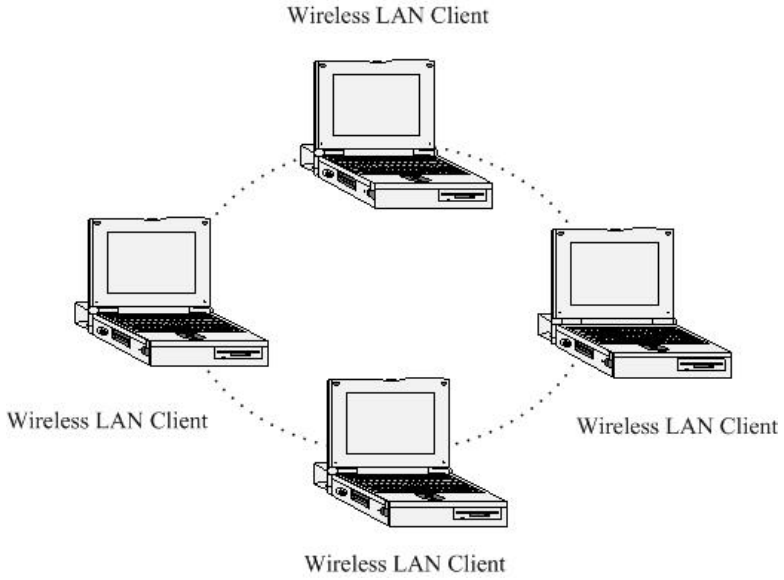
1.6 Network Configuration

To better understand how the wireless LAN products work together to create a wireless network, it might be helpful to depict a few of the possible wireless LAN PC card network configurations. The wireless LAN products can be configured as:

a) Ad-hoc (or peer-to-peer) for departmental or SOHO LANs.
b) Infrastructure for enterprise LANs.

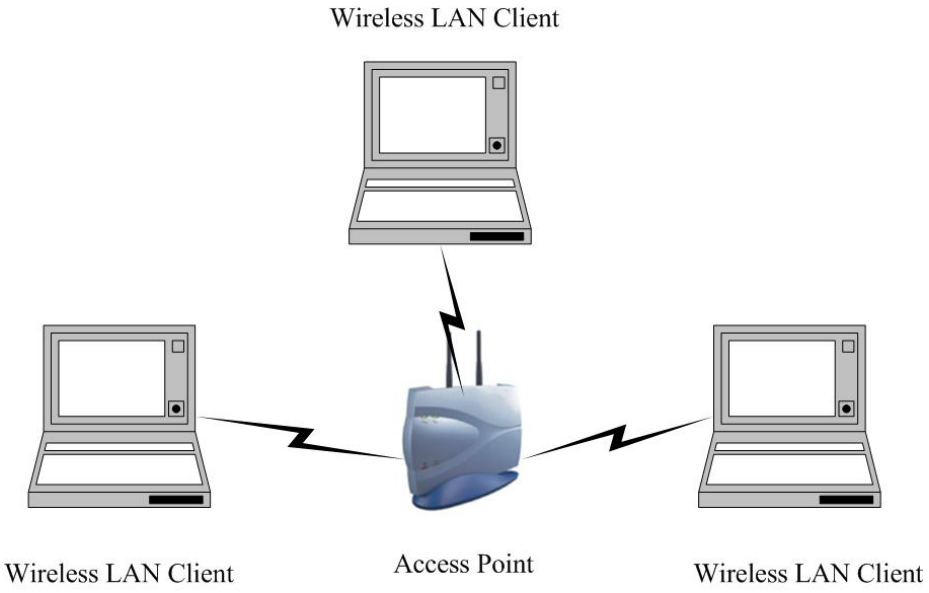
a) Ad-Hoc (peer-to-peer) Mode

This is the simplest network configuration with several computers equipped with the PC Cards that form a wireless network whenever they are within range of one another. In ad-hoc mode, each client is peer-to-peer, would only have access to the resources of the other client and does not require an access point. This is the easiest and least expensive way for the SOHO to set up a wireless network. The image below depicts a network in ad-hoc mode.



b) Infrastructure Mode

The infrastructure mode requires the use of an access point (AP). In this mode, all wireless communication between two computers has to be via the AP. It doesn't matter if the AP is stand-alone or wired to an Ethernet network. If used in stand-alone, the AP can extend the range of independent wireless LANs by acting as a repeater, which effectively doubles the distance between wireless stations. The image below depicts a network in infrastructure mode.



2 Install Drivers & Client Utility

This chapter describes how to install the drivers and client utility in Windows 98/ME/2000/XP.

2.1 Before You Begin

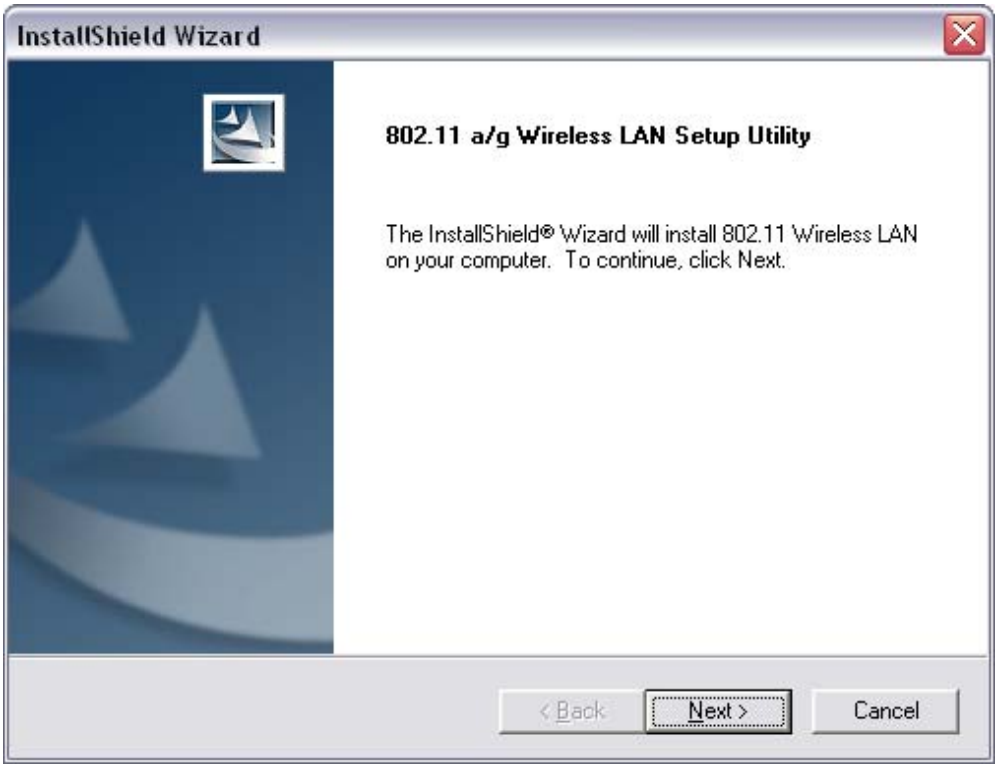
Before installing the new drivers into your PC, you need to remove all of the Wireless LAN PC card drivers that you have installed.

During the installation, Windows 98/ME/2000/XP may need to copy systems files from its installation CD. Therefore, you may need a copy of the Windows installation CD at hand before installing the drivers. On many systems, instead of a CD, the necessary installation files are archived on the hard disk in C:\WINDOWS \OPTIONS\CABS directory.

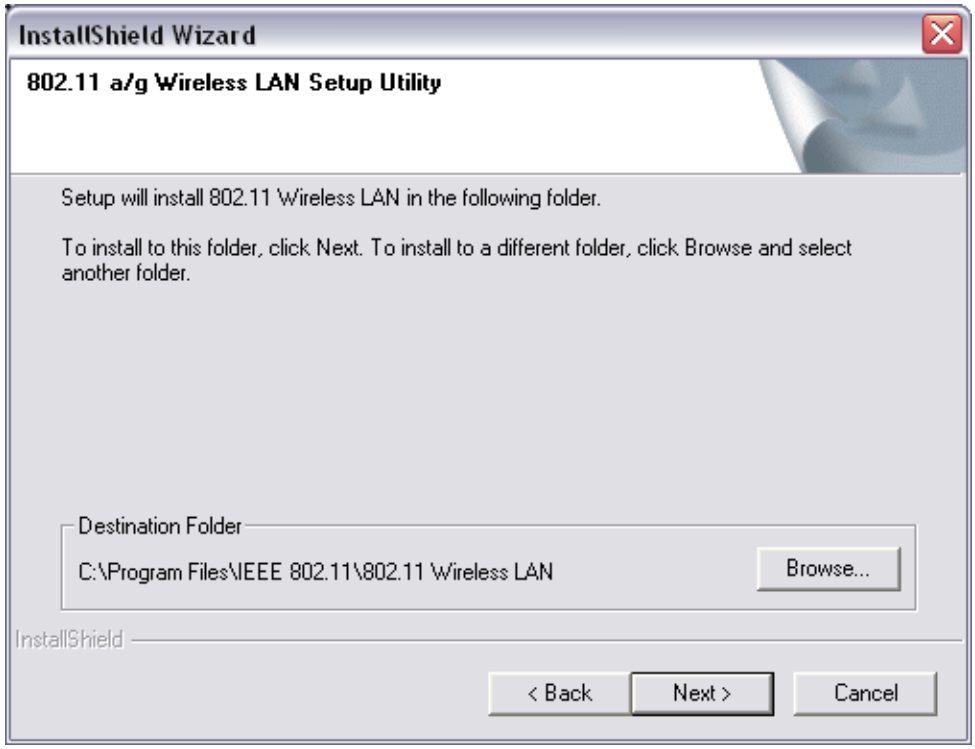
2.2 Installing the PC Card Drivers

Follow the steps below in order to install the PCI card drivers:

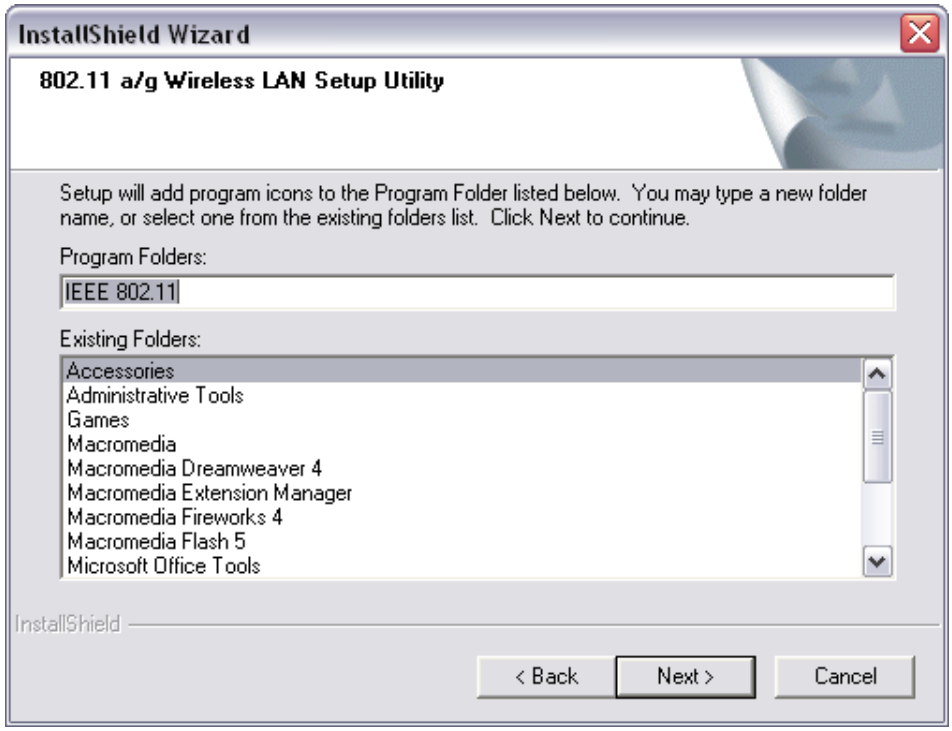
1. Insert the CD-ROM that was provided to you in this package. The setup should run automatically. If the setup does not run automatically, then you must manually select the **setup.exe** file from the CD-ROM drive.
2. Once the setup begins you will see the **Install Shield Wizard**, as the image depicts below.


InstallShield Wizard
802.11 a/g Wireless LAN Setup Utility
The InstallShield® Wizard will install 802.11 Wireless LAN on your computer. To continue, click Next.
< Back
Next >
Cancel

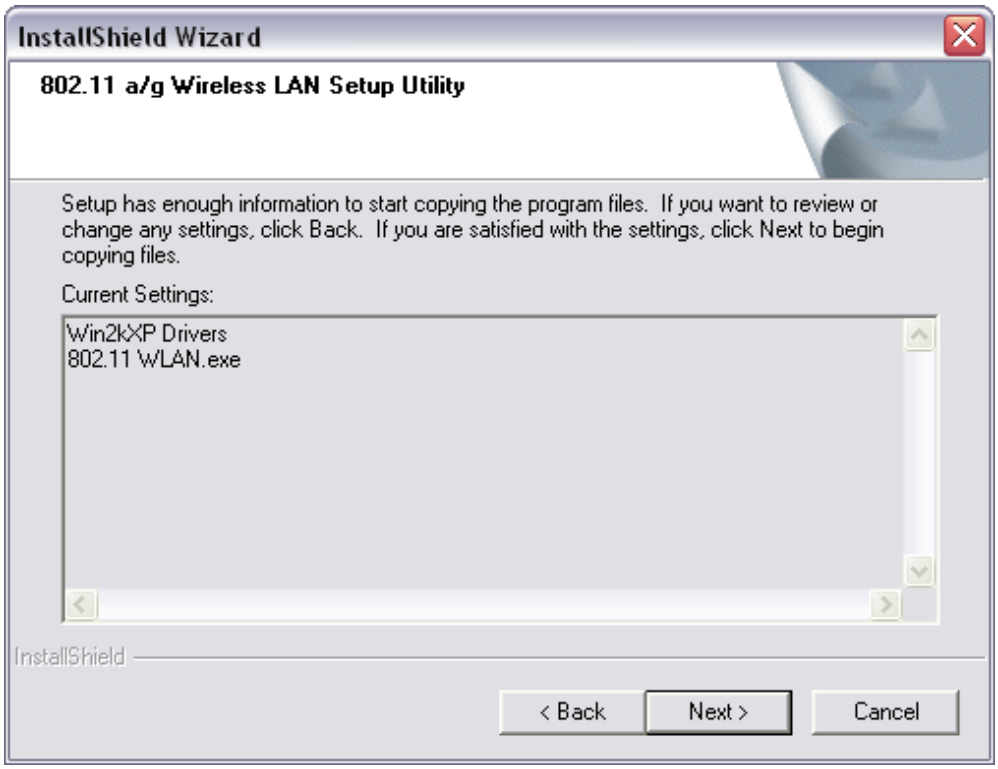
3. Click on the **Next** button to continue. The Install Wizard will then let you select a destination folder for the utility and drivers. Click on the Browse button and specify another folder, or click on the **Next** button to use the default folder.


InstallShield Wizard
802.11 a/g Wireless LAN Setup Utility
Setup will install 802.11 Wireless LAN in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\IEEE 802.11\802.11 Wireless LAN
Browse...
InstallShield
< Back
Next >
Cancel

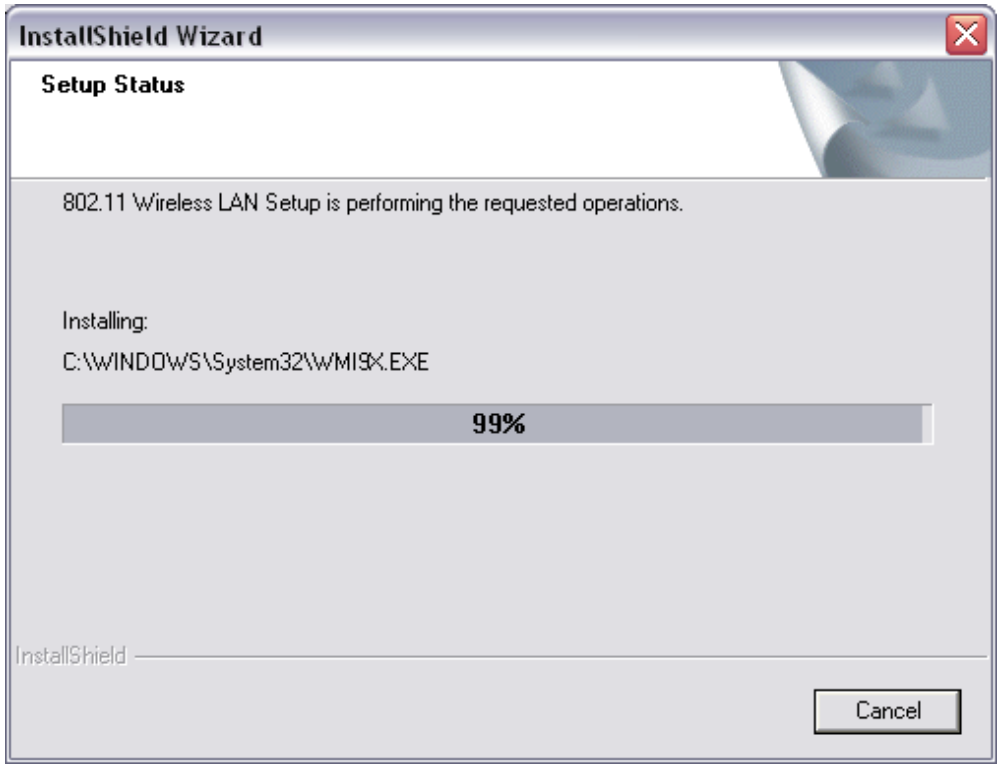
4. The Install Wizard will then allow you to select a Program Folder. Select one from the list, or click on the **Next** button to use the default program folder.



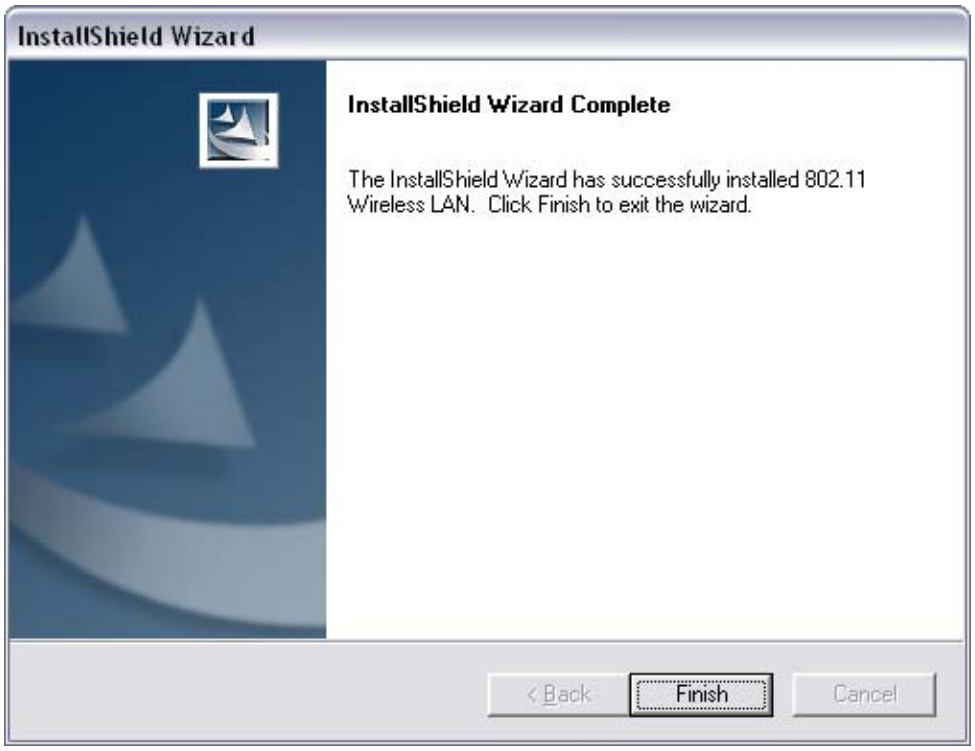
5. The Install Wizard will then inform you that it has enough information to begin the installation process. Click on the **Next** button to continue.


InstallShield Wizard
802.11 a/g Wireless LAN Setup Utility
Setup has enough information to start copying the program files. If you want to review or change any settings, click Back. If you are satisfied with the settings, click Next to begin copying files.
Current Settings:
Win2kXP Drivers
802.11 WLAN.exe
InstallShield
< Back
Next >
Cancel

6. The Install Wizard will then begin to copy the files to your computer, as the image depicts below.



7. Click on the **Finish** button. The first part of the installation is complete.


InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed 802.11 Wireless LAN. Click Finish to exit the wizard.
< Back
Finish
Cancel

8. Gently insert the PCI card into the 32-bit PCI slot of your PC. Windows will automatically detect the PCI card and display the **Found New Hardware Wizard**, as the image depicts below.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
WLAN AR5001X+ Wireless Network Adapter
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

9. Select the **Install the software automatically (Recommended)** radio button, and then click on the **Next** button to continue. If you are using Windows XP, you will see a message regarding Windows Logo Testing, click on the **Continue Anyway** button to continue.

Hardware Installation
The software you are installing for this hardware:
WLAN AR5001X+ Wireless Network Adapter
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

10. The setup will then begin to copy the necessary files. After the copying is completed you will see the final screen of the installation procedure, as the image depicts below.

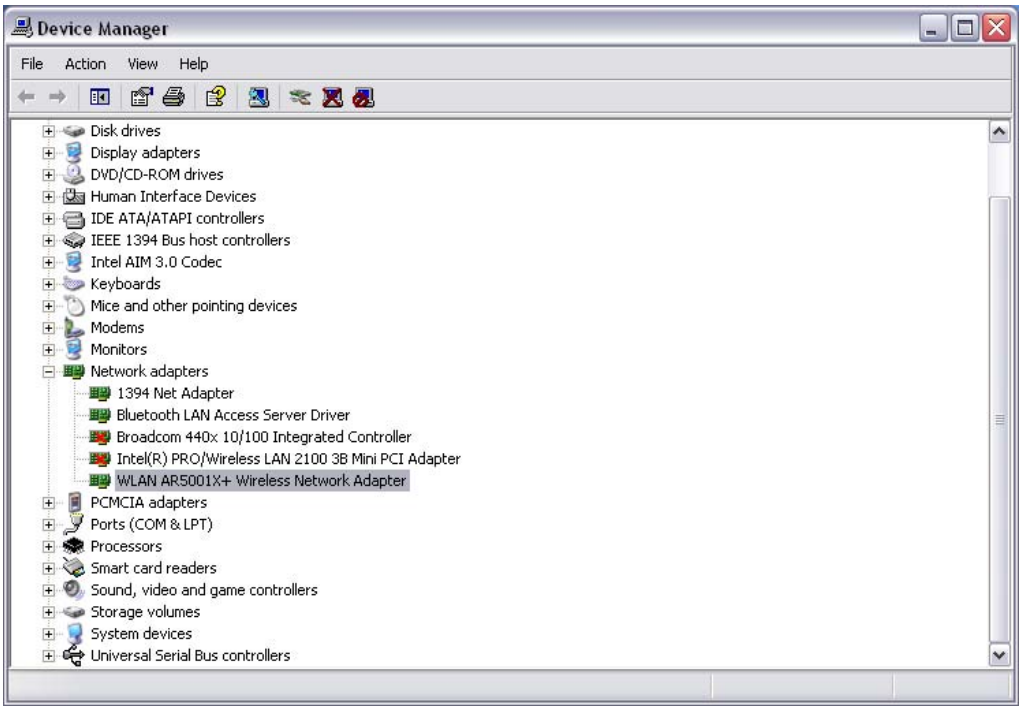
Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
WLAN AR5001X+ Wireless Network Adapter
Click Finish to close the wizard.
< Back
Finish
Cancel

11. The installation of the PCI card is now complete. Click on the **Finish** button.

2.3 Verify the installation

Follow the steps below in order to verify that the PCI card has been installed and is functioning properly:

1. Click on **Start > Settings > Control Panel**.
2. Double click on the **System** icon.
3. Click on the **Hardware** tab, and then click on the **Device Manger** button.
4. Select **Network adapters** to view a list of network adapters on your PC. You will then see a window similar to the image below.

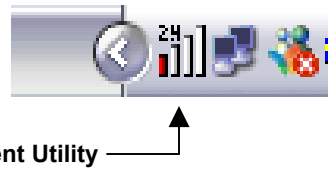


5. Make sure that a yellow (**?**) or a red (**X**) does not appear next to the PC card (*WLAN AR5001X+ Wireless Network Adapter*). If you do see a (**?**) or (**X**) you would need to uninstall the drivers, and reinstall them again. In order to uninstall the drivers refer to **Chapter 4 Uninstallation**.

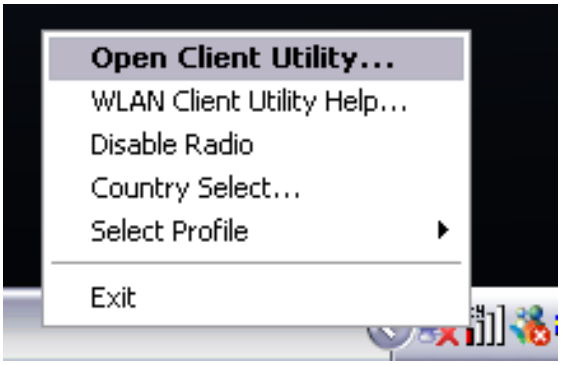
3 Using the Client Utility

This chapter describes the features of the PCI card and its configuration process. After a successful installation, an IEEE 802.11 program group will be added to the Programs menu.

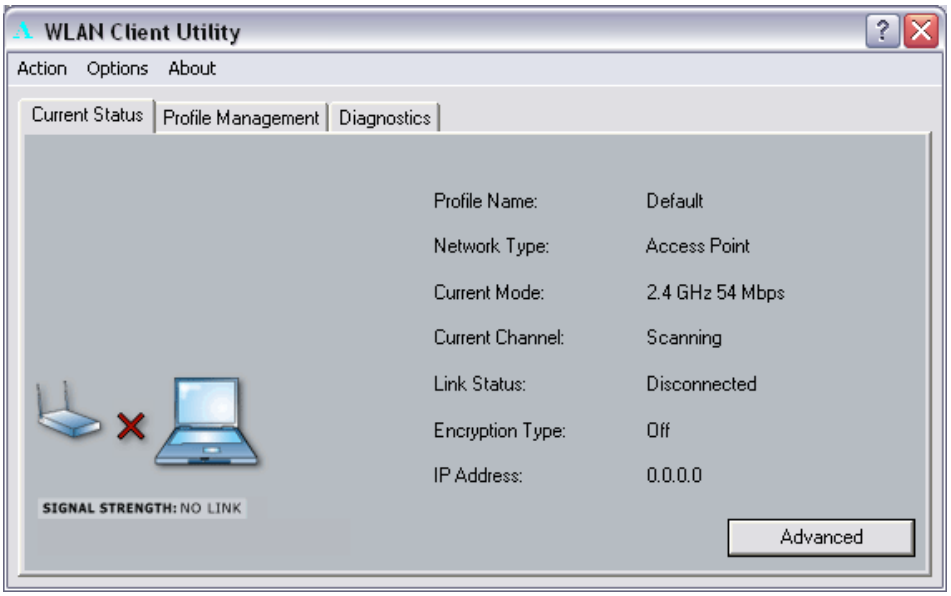
To launch the Client Utility click **Start > Programs > IEEE 80211 > 802.11 WLAN NIC Utility**. You will then see the Client Utility icon in the system tray of you computer.



Right-click on the Client Utility icon in the system tray and then click on **Open Client Utility**, as the image depicts below.

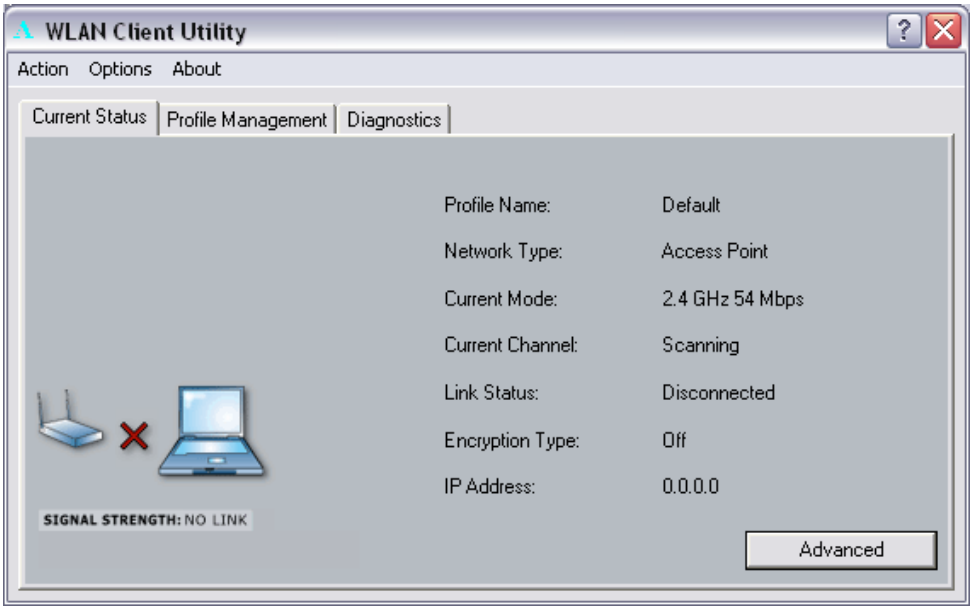


The Client Utility will then appear and display three tabs: Current Status, Power Management, and Diagnostics. Each tab is described in detail in the next few sections.



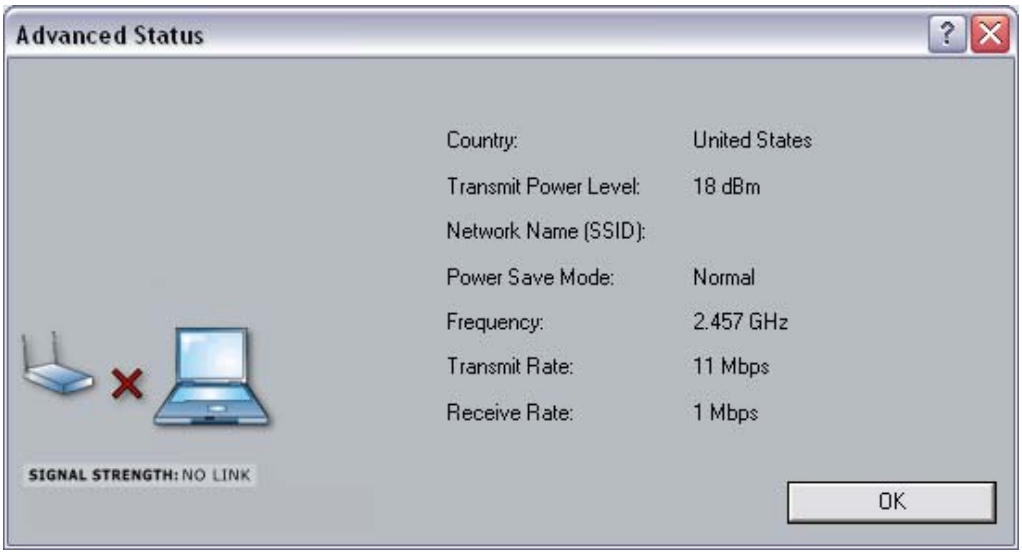
3.1 Current Status

The first tab displayed in the **Current Status** tab. This tab displays the Profile Name, Network Type, Current Mode, Current Channel, Link Status, Encryption Type, and IP Address. Configuration for each of these items is described in their respective sections.



3.1.1 Advanced Status

Click on the **Advanced** button to view more details about the status. You will then see the following window.

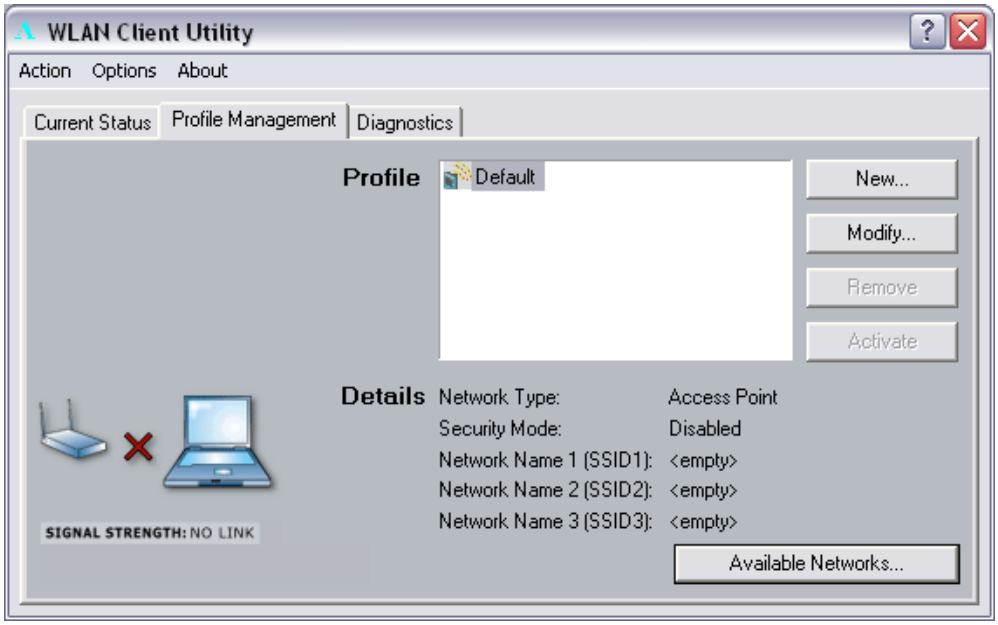


The **Advanced Status** window displays the following: Country, Transmit Power Level, Network Name (SSID), Power Save Mode, Frequency, Transmit Rate, and

Receive Rate. Configuration for each of these items is described in their respective sections. Click on the **OK** button to close this window and return to the **Current Status** tab.

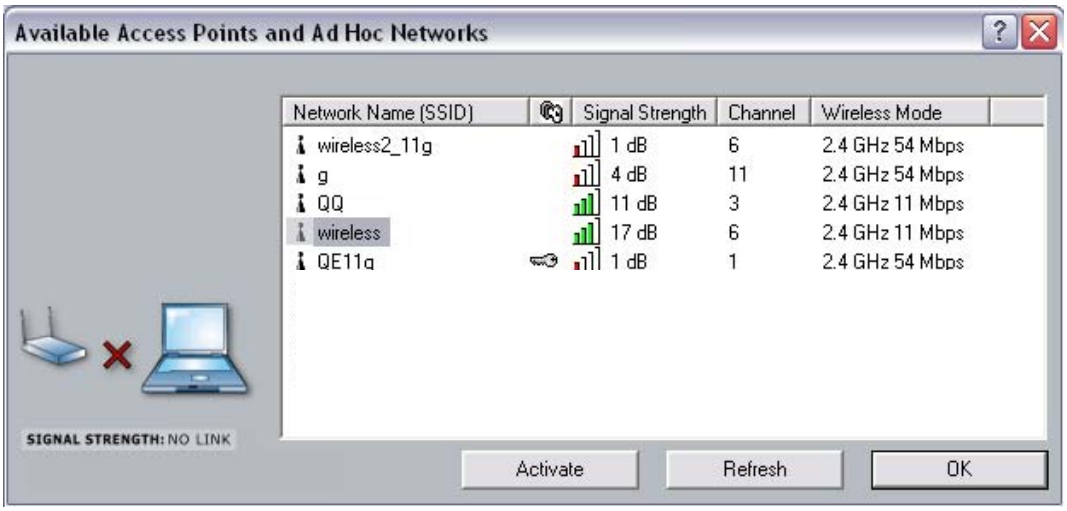
3.2 Profile Management

The second tab displayed in the **Profile Management** tab. This tab is used to create a new profile, modify and existing profile, remove an existing profile, or activate an existing profile.



3.2.1 Available Networks

Click on the **Available Networks**… button to select from a list of Access Point and Ad Hoc networks. You will then see the following window.

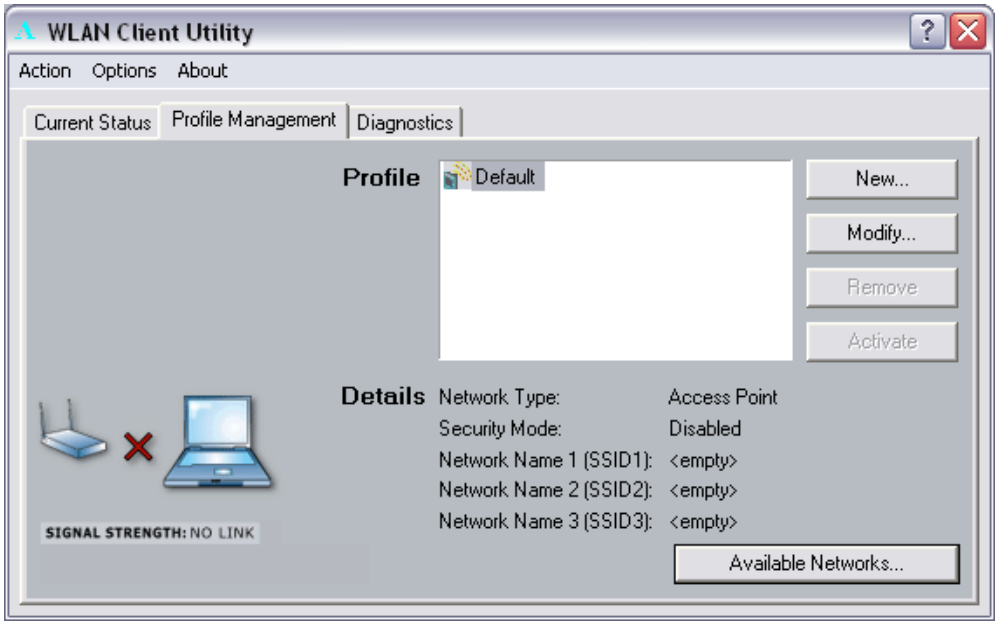

Available Access Points and Ad Hoc Networks
Network Name (SSID)
Signal Strength
Channel
Wireless Mode
wireless2_11g 1 dB 6 2.4 GHz 54 Mbps
g 4 dB 11 2.4 GHz 54 Mbps
QQ 11 dB 3 2.4 GHz 11 Mbps
wireless 17 dB 6 2.4 GHz 11 Mbps
QE11g 1 dB 1 2.4 GHz 54 Mbps
SIGNAL STRENGTH: NO LINK
Activate
Refresh
OK

This window displays a list of Access Point and Ad-Hoc networks in the area. Details included are the Network Name (SSID), Encryption Key, Signal Strength, Channel, and Wireless Mode.

If you would like to associate with an Access Point or Ad-Hoc network, select a **Network Name (SSID)** from the list and then click on **Activate** button. You will then be associated with that network, if you have the correct permissions/keys.

3.2.2 New Profile

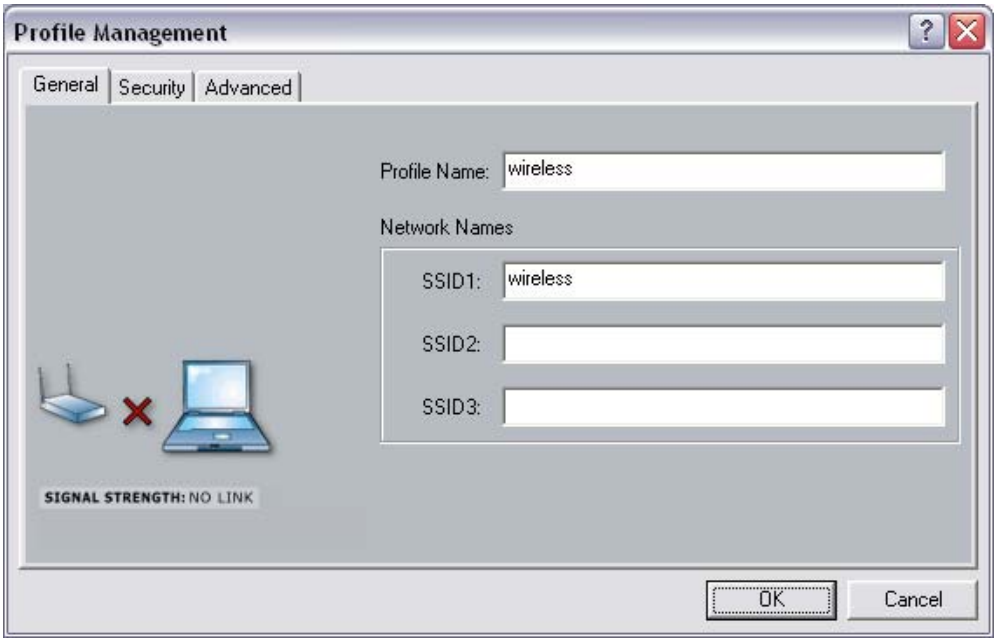
Click on the **New** button in order to create a new network to associate with.



Another window will then appear displaying three tabs: General, Security, and Advanced. Each tab is described below.

3.2.2.1 General

The first tab displayed is the **General** tab. Here you can specify a profile name and SSID.



- **Profile Name**: enter a name for this profile; this can be any name that you may associate with your network.
- **SSID1**: enter the SSID of the network. The SSID is a unique name shared among all points in your wireless network. The SSID must be identical for all points in the network, and is case-sensitive.
- Click on the **OK** button to save the changes.

3.2.2.2 Security

The second tab displayed is the **Security** tab. Here you can specify and configure the security method that is used by your network. There are five types of security methods available: None, WPA, WPA-PSK, 802.1X, and Pre-Shared Key. Configuration for each security method is described below.

3.2.2.2.1 None

If your network does not use any type of security select the **None** radio button and then click on the **OK** button.

3.2.2.2.2 WPA

WPA (Wi-Fi Protected Access) was designed to improve upon the security features of WEP (Wired Equivalent Privacy). The technology is designed to work with existing Wi-FI products that have been enabled with WEP. WPA provides improved data encryption through the Temporal Integrity Protocol (TKIP), which scrambles the keys using a hashing algorithm and by adding an integrity-checking feature which makes sure that keys haven't been tampered with.

If your network uses **WPA,** select that radio button. You must then select an **EAP** type from the drop-down list. The two options available are: TLS and PEAP. Each one is described below.

3.2.2.2.2.1 WPA – TLS

EAP (Extensible Authentication Protocol) is an extension to the PPP protocol that enables a variety of authentication protocols to be used. It passes through the exchange of authentication messages, allowing the authentication software stored in a server to interact with its counterpart in the client.

TLS (Transport Layer Security) is an IETF standardized authentication protocol that uses PKI (Public Key Infrastructure) certificate-based authentication of both the client and authentication server.

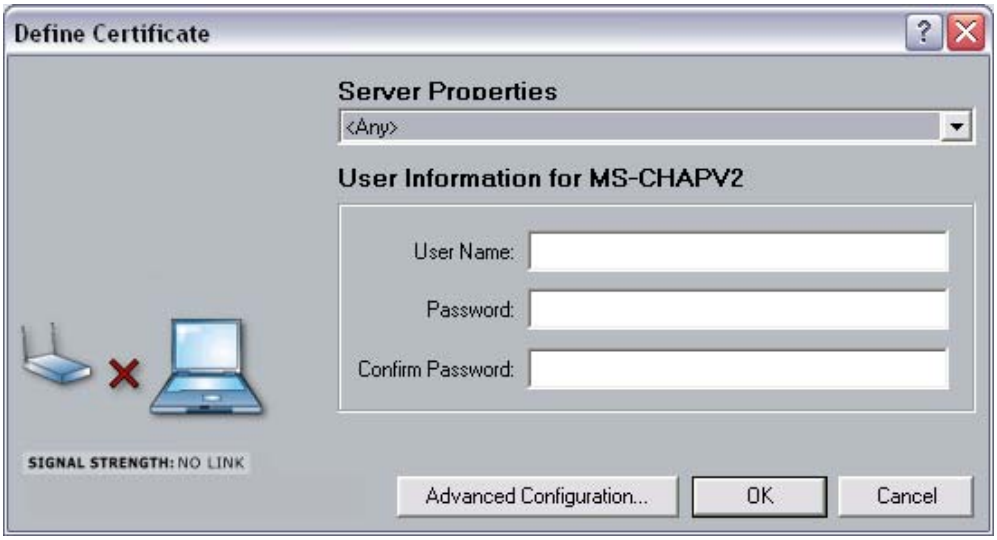
Select **TLS** from the drop-down list, and then click on the **Configure** button. The Client Utility will then search your computer for any certificates. If you do not have any certificates, you will see the following message, requiring you to select another EAP option. Click on the **OK** button.

3.2.2.2.2.2 WPA – PEAP

EAP (Extensible Authentication Protocol) is an extension to the PPP protocol that enables a variety of authentication protocols to be used. It passes through the exchange of authentication messages, allowing the authentication software stored in a server to interact with its counterpart in the client.

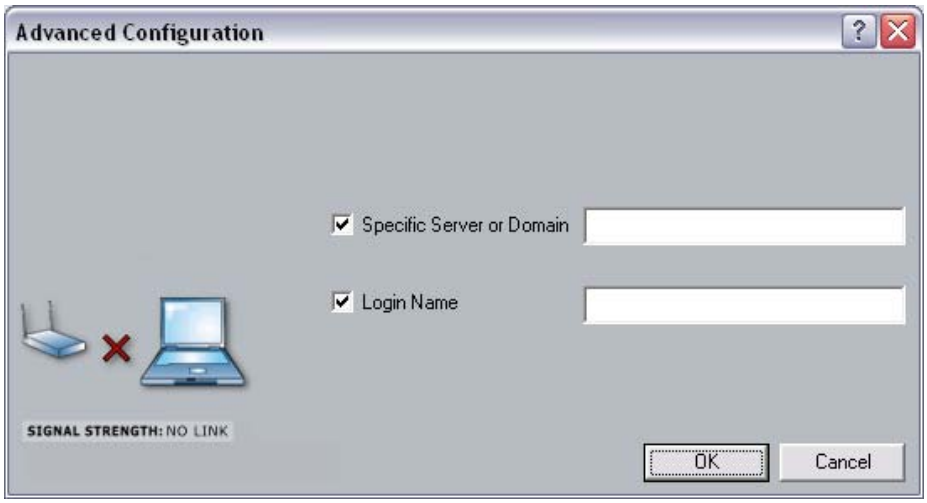
PEAP (Protected Extensible Authentication Protocol) is a protocol developed jointly by Microsoft, RSA Security, and Cisco for transmitting authentication data, including passwords over a 802.11 wireless network. PEAP authenticates wireless LAN clients using only server-side digital certificates by creating an SSL/TLS tunnel between the client and the authentication server. The tunnel then protects the subsequent user authentication exchange.

Select **PEAP** from the drop-down list, and then click on the **Configure** button. You will then see the following window.



- **Server Properties**: select a server name from the drop-down list.
- **User Name**: enter the user name.
- **Password**: enter the password.
- **Confirm Password**: re-type the password for confirmation purposes.
- Click on the **OK** button, or click on the **Advanced Configuration** button to specify a server or login name.

After clicking on the **Advanced Configuration** button, you will see the following window.

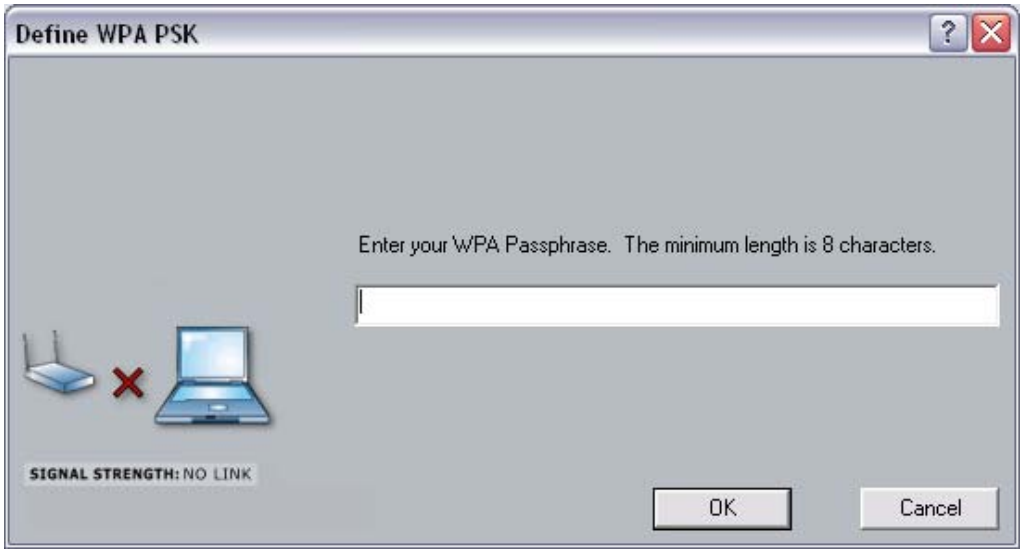


- **Specific Server or Domain**: place a check in this box and enter the server or domain name. This field is optional.
- **Login Name**: place a check in this box and enter the login name. This field is optional.

3.2.2.2.3 WPA – PSK

WPA – PSK (Pre-shared Key) is used in a Pre Shared Key mode that does not require an authentication server. Access to the Internet and the rest of the wireless network services is allowed only if the pre-shared key of the computer matches that of the Access Point. This approach offers the simplicity of the WEP key, but uses stronger TKIP encryption.

If your network uses **WPA-PSK,** select that radio button, and then click on the **Configure** button. You will then see the following window.



Enter the WPA pass-phrase in the text box. The pass-phrase must be a minimum of 8 characters. This is the password shared between the Access Points and the Clients. Click on the **OK** button when completed.

3.2.2.2.4 802.1X

802.1X provides an authentication framework for wireless LANs allowing a user to be authenticated by a central authority. 802.1X uses an existing protocol called EAP.

EAP (Extensible Authentication Protocol) is an extension to the PPP protocol that enables a variety of authentication protocols to be used. It passes through the exchange of authentication messages, allowing the authentication software stored in a server to interact with its counterpart in the client.

If your network uses **802.1X,** select that radio button. You must then select an EAP type from the drop-down list. The three options available are: TLS, PEAP, and LEAP. Each one is described below.

3.2.2.2.4.1 802.1X – TLS

EAP (Extensible Authentication Protocol) is an extension to the PPP protocol that enables a variety of authentication protocols to be used. It passes through the exchange of authentication messages, allowing the authentication software stored in a server to interact with its counterpart in the client.

TLS (Transport Layer Security) is an IETF standardized authentication protocol that uses PKI (Public Key Infrastructure) certificate-based authentication of both the client and authentication server.

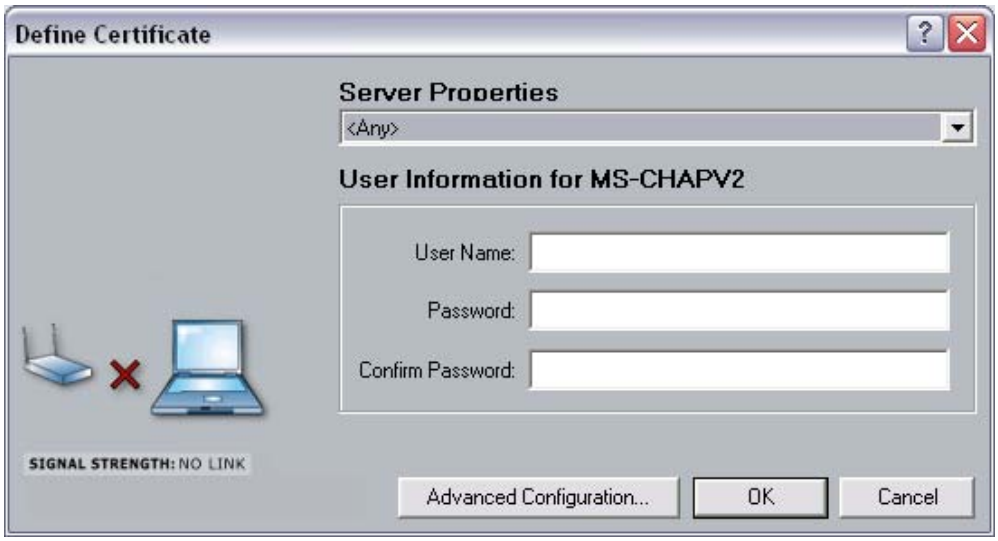
Select **TLS** from the drop-down list, and then click on the **Configure** button. The Client Utility will then search your computer for any certificates. If you do not have any certificates, you will see the following message, requiring you to select another EAP option. Click on the **OK** button.

3.2.2.2.4.2 802.1X – PEAP

EAP (Extensible Authentication Protocol) is an extension to the PPP protocol that enables a variety of authentication protocols to be used. It passes through the exchange of authentication messages, allowing the authentication software stored in a server to interact with its counterpart in the client.

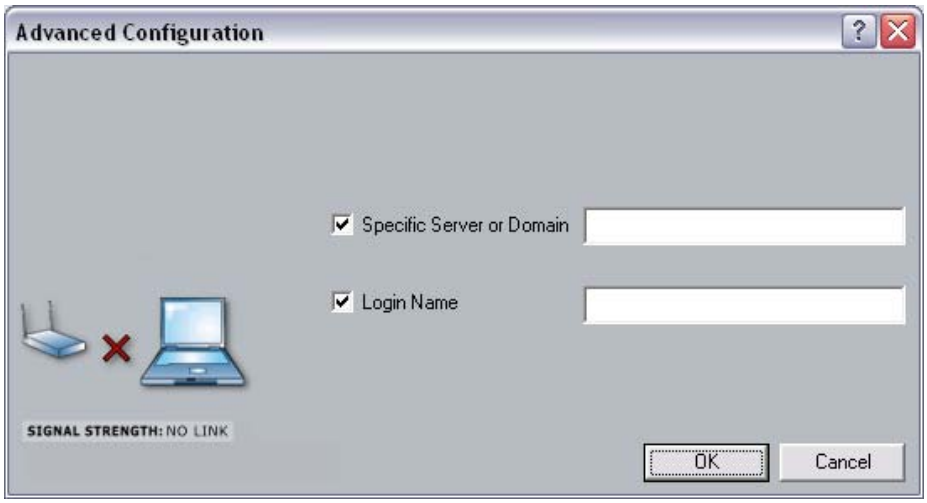
PEAP (Protected Extensible Authentication Protocol) is a protocol developed jointly by Microsoft, RSA Security, and Cisco for transmitting authentication data, including passwords over a 802.11 wireless network. PEAP authenticates wireless LAN clients using only server-side digital certificates by creating an SSL/TLS tunnel between the client and the authentication server. The tunnel then protects the subsequent user authentication exchange.

Select **PEAP** from the drop-down list, and then click on the **Configure** button. You will then see the following window.



- **Server Properties**: select a server name from the drop-down list.
- **User Name**: enter the user name.
- **Password**: enter the password.
- **Confirm Password**: re-type the password for confirmation purposes.
- Click on the **OK** button, or click on the **Advanced Configuration** button to specify a server or login name.

After clicking on the **Advanced Configuration** button, you will see the following window.



- **Specific Server or Domain**: place a check in this box and enter the server or domain name. This field is optional.
- **Login Name**: place a check in this box and enter the login name. This field is optional.

3.2.2.2.4.3 802.1X – LEAP

EAP (Extensible Authentication Protocol) is an extension to the PPP protocol that enables a variety of authentication protocols to be used. It passes through the exchange of authentication messages, allowing the authentication software stored in a server to interact with its counterpart in the client.

LEAP (Lightweight Extensible Authentication Protocol) also known as Cisco-Wireless EAP provides username/password-based authentication between a wireless client and a RADIUS server. LEAP is one of several protocols used with the IEEE 802.1X standard for LAN port access control. LEAP also delivers a session key to the authenticated station, so that future frames can be encrypted with a key that is different than keys used by others sessions. Dynamic key delivery eliminates one big vulnerability; static encryption keys that are shared by all stations in the WLAN.

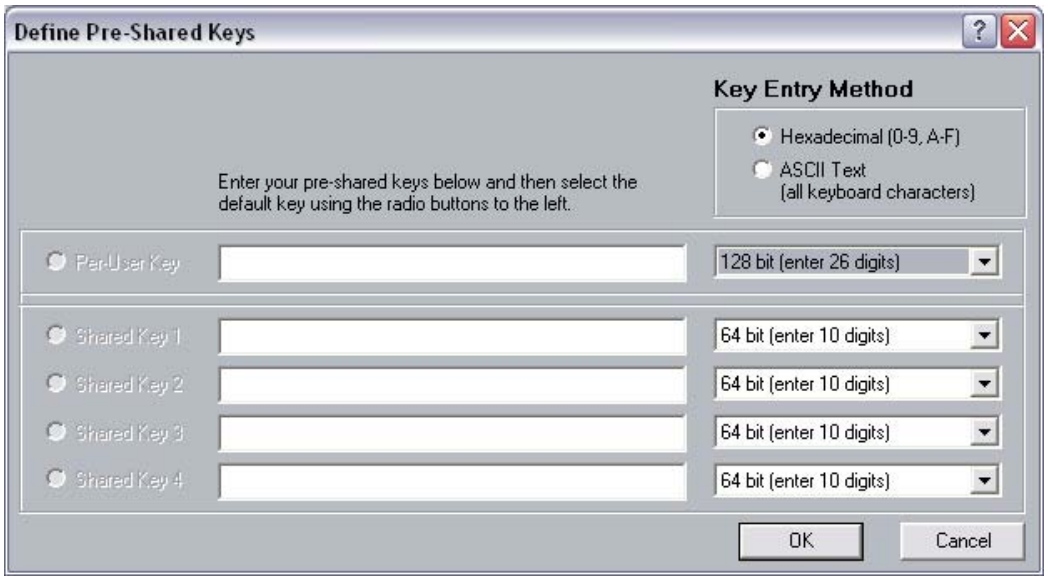
Select **LEAP** from the drop-down list, and then click on the **Configure** button. You will then see the following window.

- **User Name**: enter the user name.
- **Password**: enter the password.
- **Confirm Password**: re-type the password for confirmation purposes.
- Click on the **OK** button to continue.

3.2.2.2.5 Pre-Shared Key

Pre-shared Key does not require an authentication server. Access to the Internet and the rest of the wireless network services is allowed only if the pre-shared key of the computer matches that of the Access Point. This approach offers the simplicity of the WEP key, but uses stronger TKIP encryption.

If your network uses a **Pre-Shared Key,** select that radio button, and then click on the **Configure** button. You will then see the following window.


Define Pre-Shared Keys
Key Entry Method
Hexadecimal (0-9, A-F)
ASCII Text
(all keyboard characters)
Enter your pre-shared keys below and then select the default key using the radio buttons to the left.
Per-User Key
128 bit (enter 26 digits)
Shared Key 1
64 bit (enter 10 digits)
Shared Key 2
64 bit (enter 10 digits)
Shared Key 3
64 bit (enter 10 digits)
Shared Key 4
64 bit (enter 10 digits)
OK
Cancel

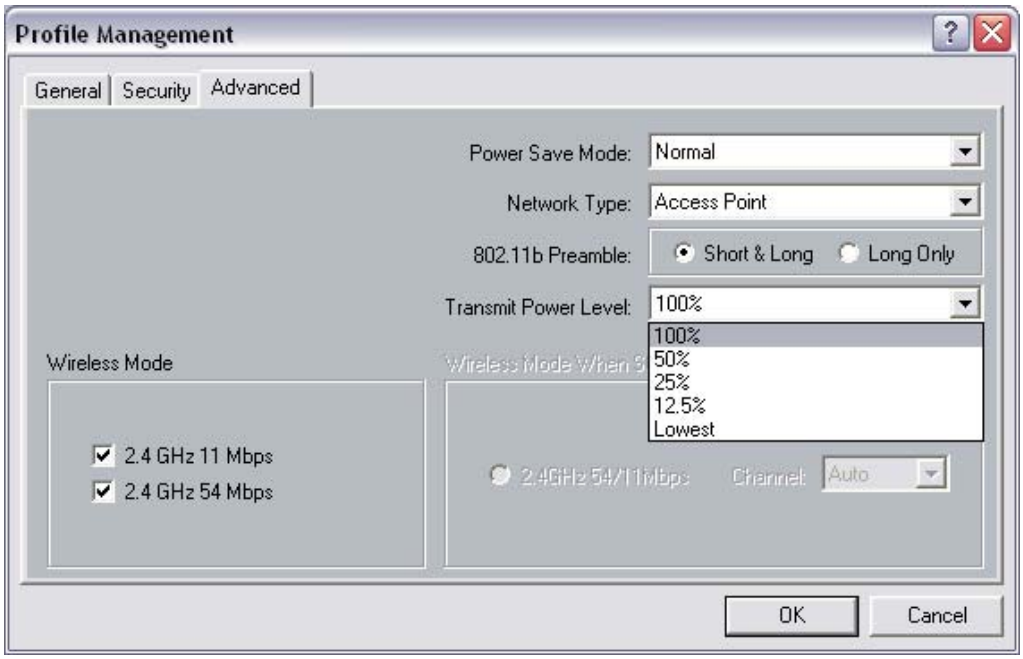
- **Hexadecimal (0-9, A-F)**: select this radio button if you would like to use hexadecimal characters as the Pre-shared Key.

- **ASCII Text (all keyboard characters)**: select this option if you would like to use ASCII text as the Pre-shared Key.
- **Per-User-Key:** enter a per-user-key, and then select an encryption type from the drop-down list (64/128/152-bit).
- **Shared Key 1-4:** enter the shared-key, and then select an encryption type from the drop-down list.
- Click on the **OK** button to continue.

3.2.2.3 Advanced

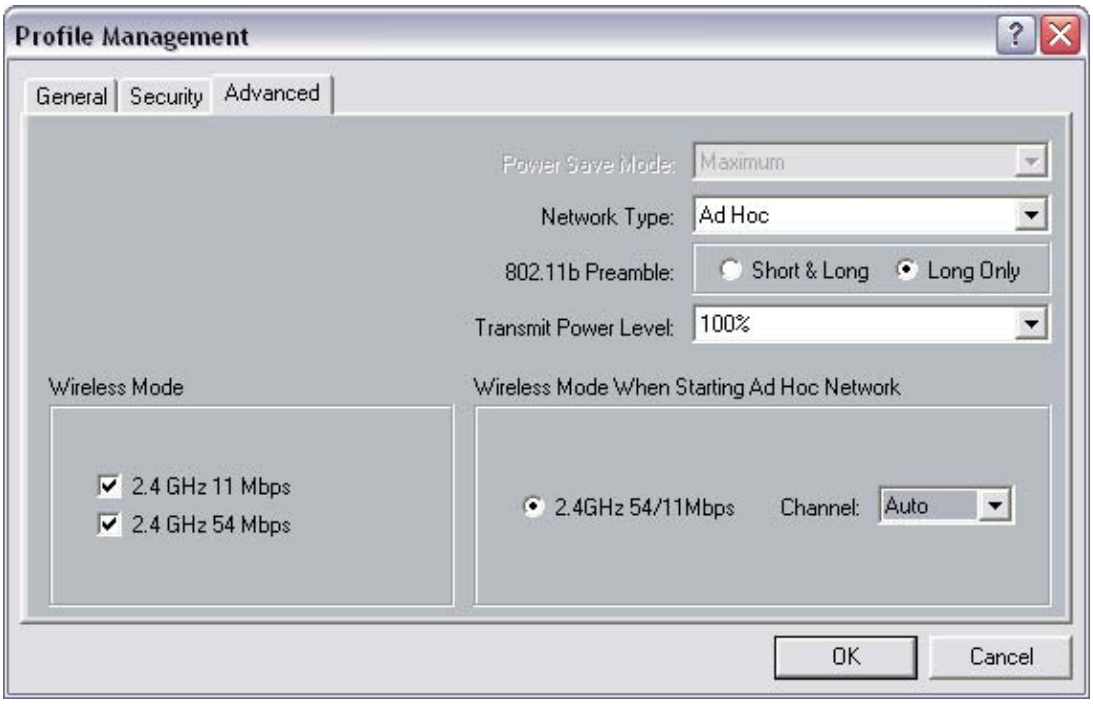
The third tab displayed is the **Advanced** tab. Here you can configure details about an Access Point or Ad Hoc network Configuration for each security method is described below.

3.2.2.3.1 Access Point



- **Power Save Mode:** select a power save mode from the drop-down list.
- **Network Type:** select **Access Point** from the drop-down list.
- **802.11b Preamble:** select **Short & Long** or **Long Only**.
- **Transmit Power Level:** select a power level from the drop-down list.
- **Wireless Mode 2.4 GHz 11 Mbps:** place a check in this box if you would like to use 2.4 GHz 11 Mbps.
- **Wireless Mode 2.4 GHz 54 Mbps:** place a check in this box if you would like to use 2.4 GHz 11 Mbps.
- Click on the **OK** button to continue.

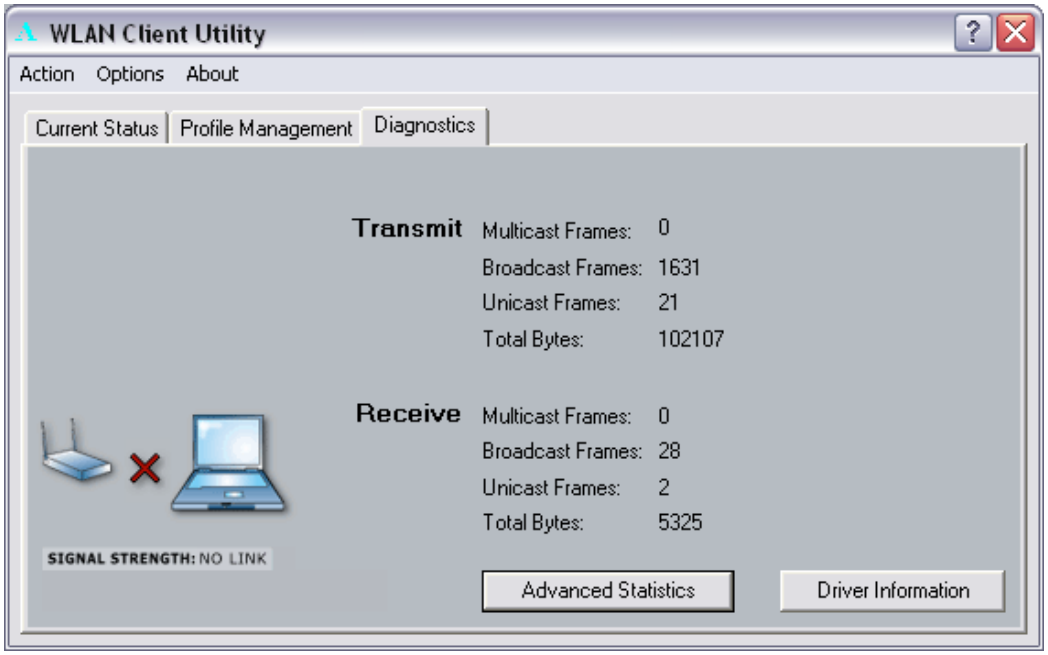
3.2.2.3.2 Ad Hoc



- **Network Type:** select **Ad Hoc** from the drop-down list.
- **802.11b Preamble:** select **Short & Long** or **Long Only**.
- **Transmit Power Level:** select a power level from the drop-down list.
- **Wireless Mode 2.4 GHz 11 Mbps:** place a check in this box if you would like to use 2.4 GHz 11 Mbps.
- **Wireless Mode 2.4 GHz 54 Mbps:** place a check in this box if you would like to use 2.4 GHz 11 Mbps.
- **Channel:** select a channel number from the drop-down list, or set the channel to **auto**.
- Click on the **OK** button to continue.

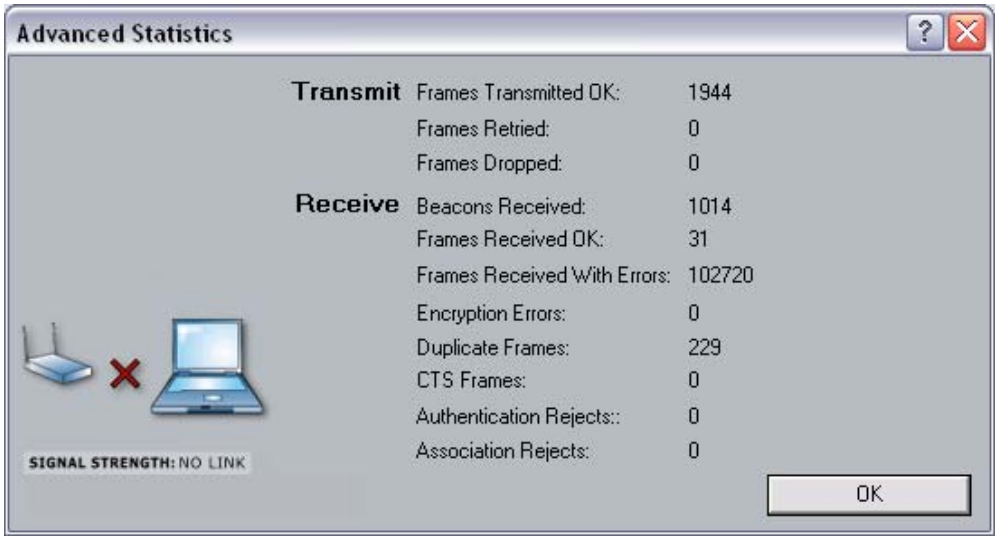
3.3 Diagnostics

The third tab displayed in the **Diagnostics** tab. This tab displays transmit and receive frame details.



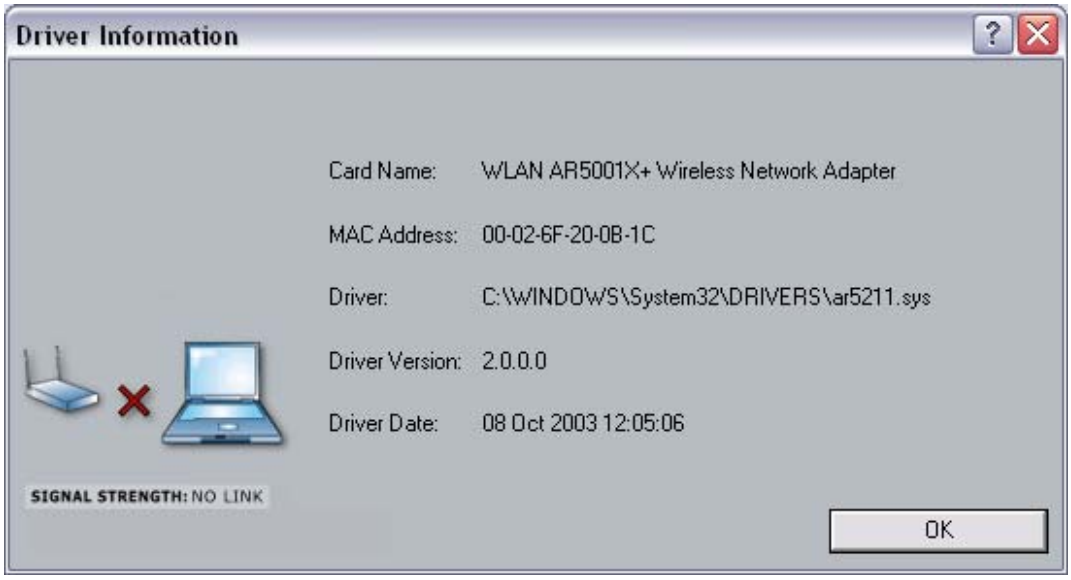
3.3.1 Advanced Statistics

Click on the **Advanced Statistics** button to view more detailed statistics.



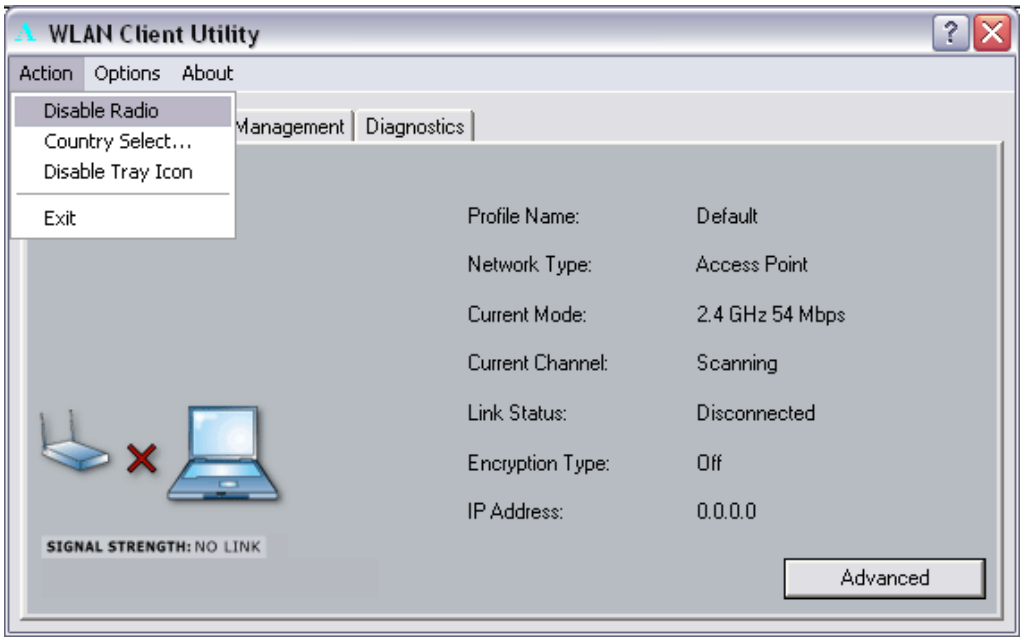
3.3.2 Driver Information

Click on the **Driver Information** button to view details about the driver. Included information is: Card Name, MAC Address, Driver, Driver Version, and Driver Date.



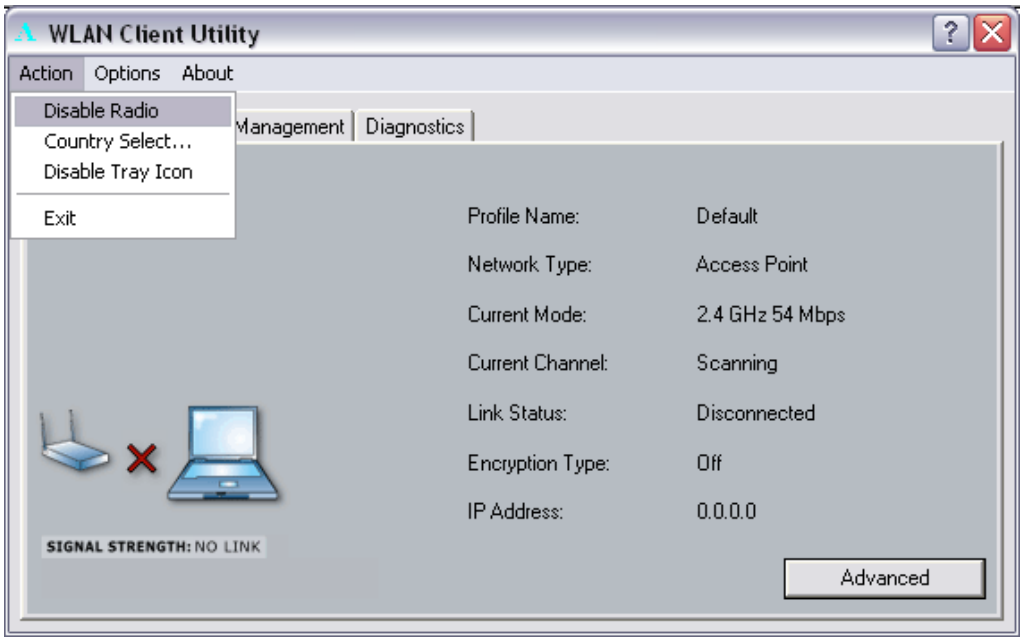
3.4 Action

Click on the **Action** menu, you will then see three options: Disable/Enable Radio, Country Select, and Disable Tray Icon. Each one is described in detail below.



3.4.1 Disable/Enable Radio

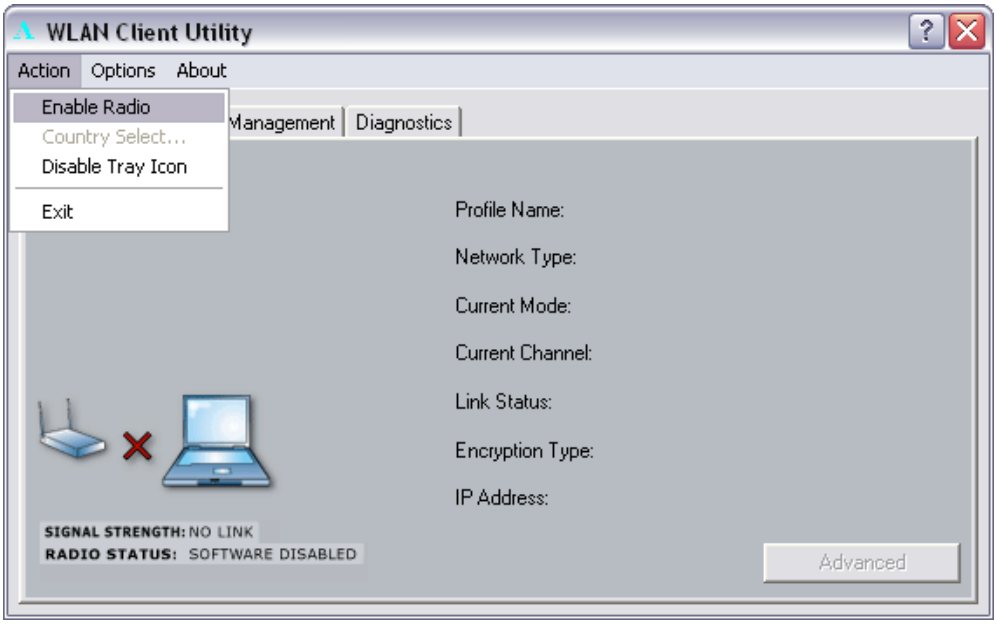
In order to disable the radio, click on **Action**, and then select **Disable Radio**.



You will then see the following message confirming that the RF signals have been disabled. Click on the **OK** button.

WLAN Client Utility
The RF signals for the following network card(s) have been successfully disabled:
WLAN AR5001X+ Wireless Network Adapter
OK

In order to enable the radio, click on **Action**, and then select **Enable Radio**.

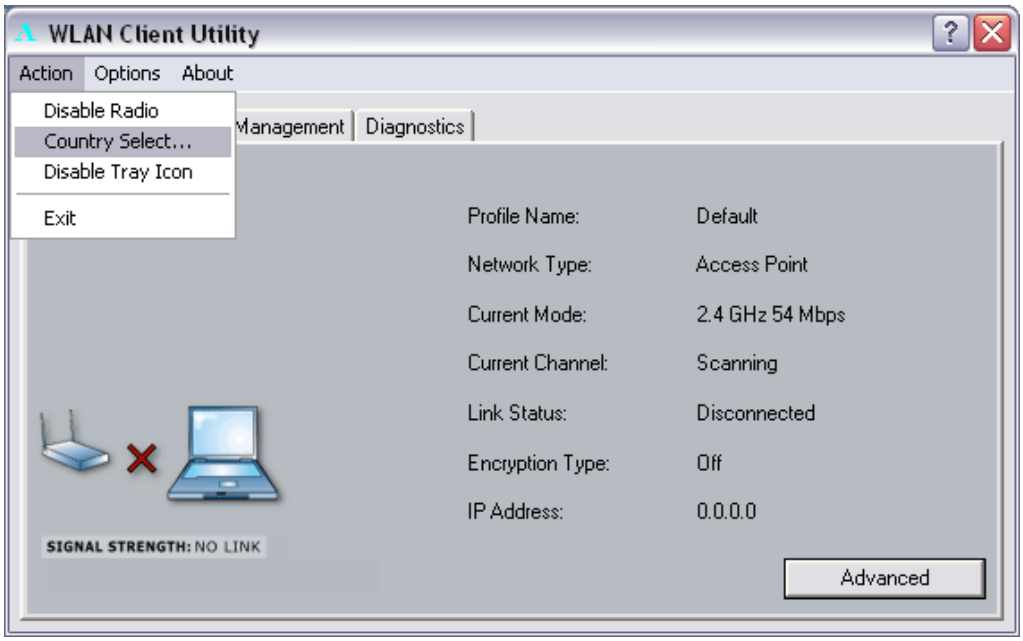


You will then see the following message confirming that the RF signals have been enabled. Click on the **OK** button.

WLAN Client Utility
The RF signals for the following network card(s) have been successfully enabled:
WLAN AR5001X+ Wireless Network Adapter
OK

3.4.2 Country Select

In order to configure the Country on the PC Card, click on **Action** and then **select Country Select**.

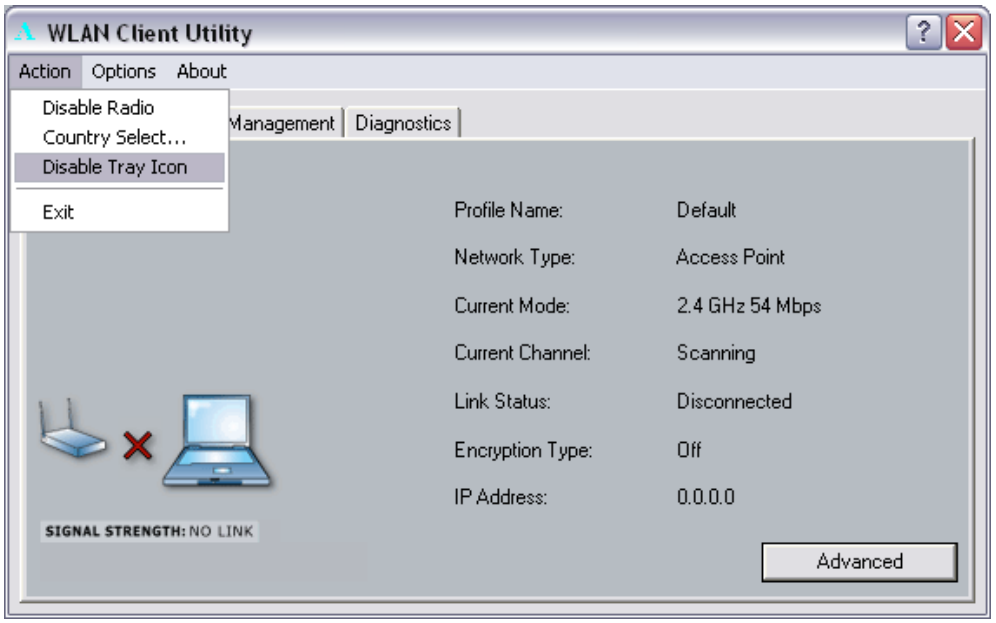


Select your country from the drop-down list, and then click on the **OK** button.

3.4.3 Disable/Enable Tray Icon

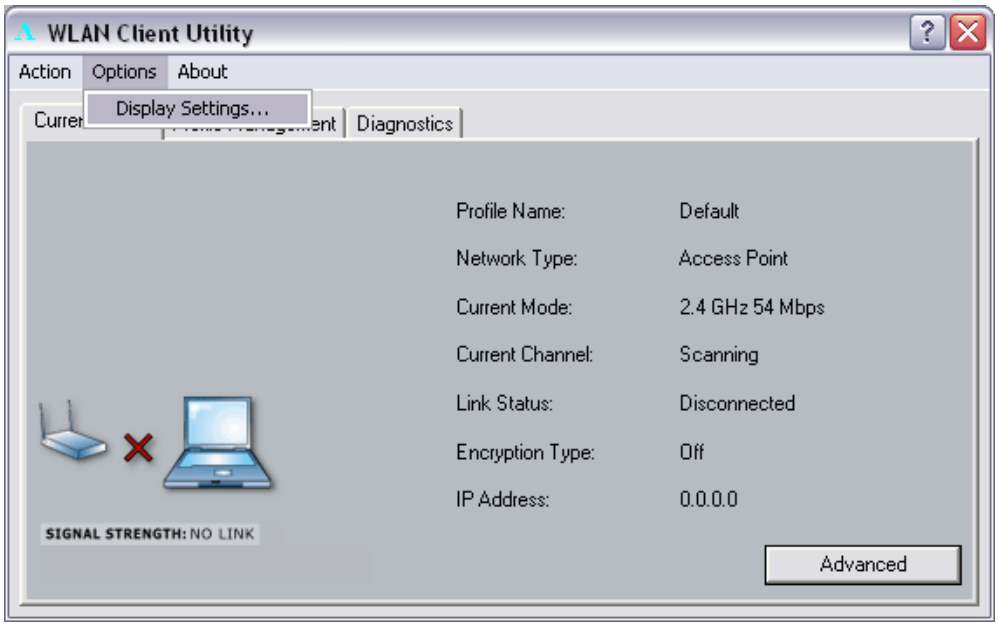
This item allows you to set the system tray radio icon to appear or disappear. Click on **Action**, and then select **Disable Tray Icon**.

To enable the Tray Icon, **Click** on Action, and the select **Enable Tray Icon**.

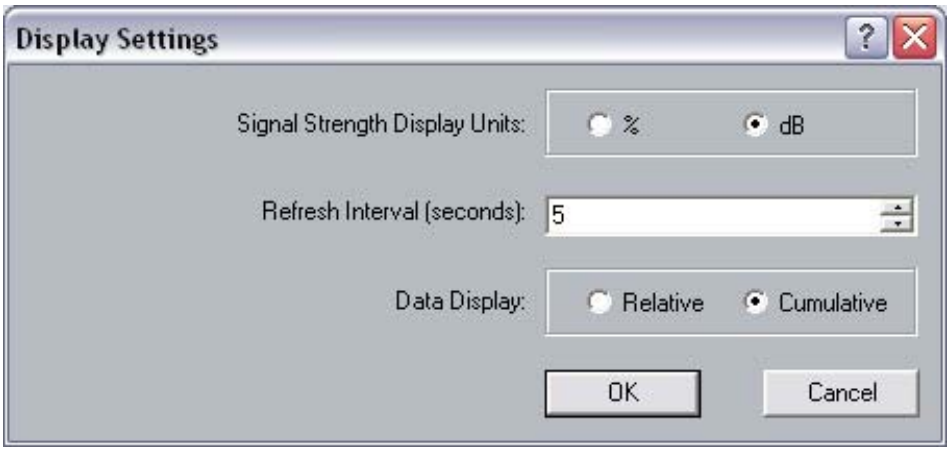


3.5 Options

Click on the **Options** menu and then select **Display Settings**.



You will then see the following window. In this window you can configure the display options of: Signal Strength, Refresh Interval, and Data Display.



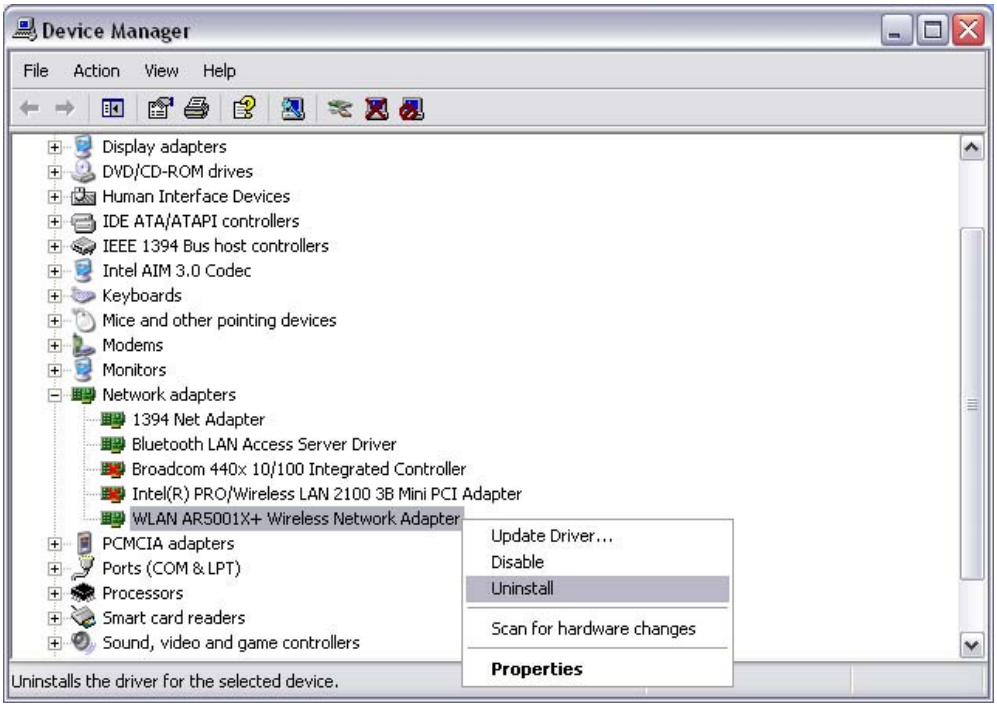
- **Signal Strength Display Units:** select a display unit option: **%** or **dB**.
- **Refresh Interval (seconds):** enter a refresh interval value.
- **Data Display:** select a data display option: **Relative** or **Cumulative**.
- Click on the **OK** button.

4 Uninstallation

If the PC card installation is unsuccessful for any reason, the best way to solve the problem may be to completely uninstall the PC card and its software and repeat the installation procedure again.

Follow the steps below in order to uninstall the Client Utility:

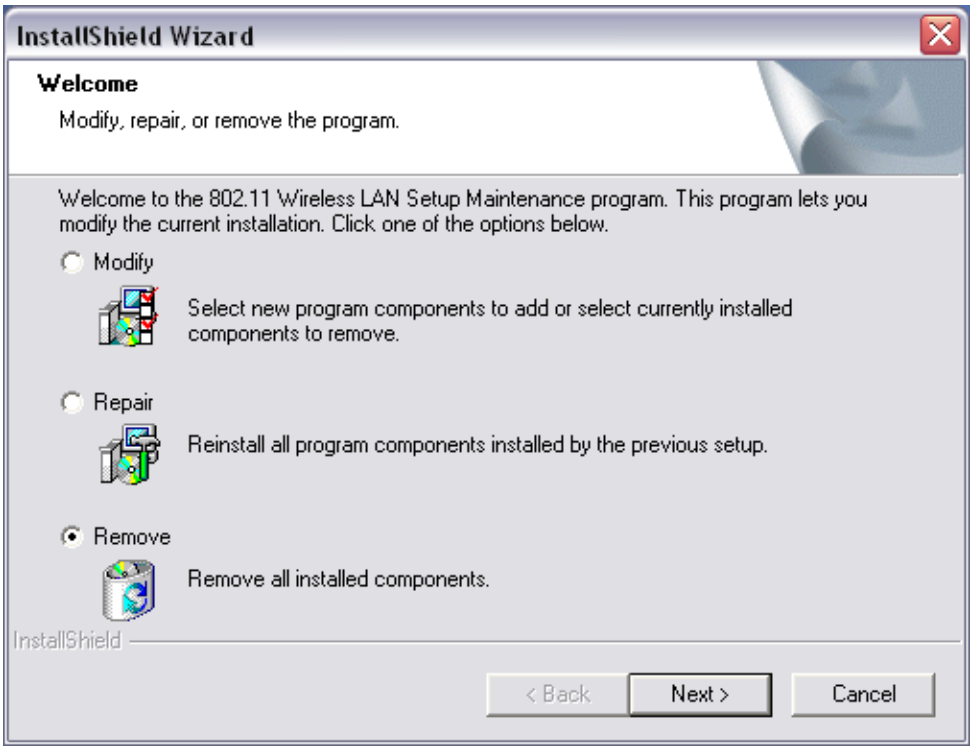
1. Click on **Start > Settings > Control Panel**.
2. Double click on the **System** icon.
3. Click on the **Hardware** tab, and then click on the **Device Manger** button.
4. Select **Network adapters** to view a list of network adapters on your PC.
5. Right-click on the **WLAN AR5001X+ Wireless Network Adapter**, you will then see a window similar to the image below.



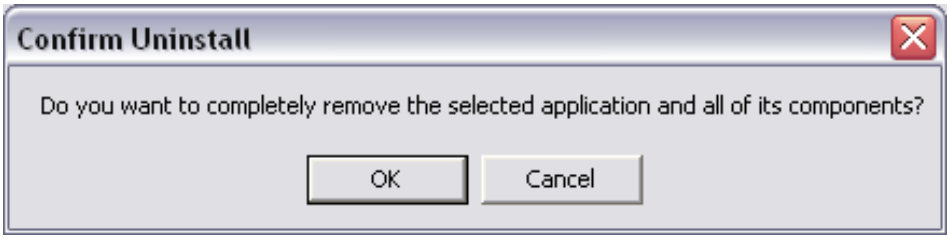
6. Select **Uninstall**. You will then see the following message asking you to confirm the device removal.

Confirm Device Removal
WLAN AR5001X+ Wireless Network Adapter
Warning: You are about to uninstall this device from your system.
OK
Cancel

7. Click on the **OK** button. The driver Uninstallation will then complete.
8. Click **Start > Programs > 802.11 WLAN NIC Driver & Utility**, you will then see the following window.


InstallShield Wizard
Welcome
Modify, repair, or remove the program.
Welcome to the 802.11 Wireless LAN Setup Maintenance program. This program lets you modify the current installation. Click one of the options below.
Modify
Select new program components to add or select currently installed components to remove.
Repair
Reinstall all program components installed by the previous setup.
Remove
Remove all installed components.
InstallShield
< Back
Next >
Cancel

9. Select the **Remove** radio button, and then click on the **Next** button.
10. A message will then appear asking to you confirm the Uninstallation. Click on the **OK** button.



11. The Client Utility will then begin to uninstall. Another window will then appear select **Yes, I want to restart my computer now** radio button, and then click on the **Finish** button. The Uninstallation process is complete.

Appendix A – Specifications

General	
Data Rates	802.11g : 6, 9, 12, 18, 24, 36, 48 & 54Mbps. (Super G: Up to 108Mbps) 802.11b : 1, 2, 5.5, 11Mbps.
Network Standards	IEEE 802.11g, IEEE 802.11b
Compliance	FCC Part 15/UL, ETSI 300/328/CE
Current consumption	Continue Tx: < 850mA Continue Rx: < 550mA
Drivers	Windows 98/ME/2000/XP
Operational voltage	3.3V
Security	IEEE802.1x Support for LEAP (Optional) WPA - Wi-Fi Protected Access (64,128,152-WEP with TKIP, Shared Key Authentication)
RF Information	
Frequency Band	2.412~2.462GHz(US) 2.412~2.484GHz(Japan) 2.412~2.472GHz(Europe ETSI) 2.457~2.462GHz(Spain) 2.457~2.472GHz(France)
Channels	11 for North America, 14 for Japan, 13 for Europe, 2 for Spain, 4 for France
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation Technology	802.11g : OFDM (64-QAM, 16-QAM, QPSK, BPSK) 802.11b : DSSS (DBPSK, DQPSK, CCK)
Receive Sensitivity (typical)	-93dBm @ 1Mbps -89dBm @ 9Mbps -80dBm @ 36Mbps -92dBm @ 2Mbps -88dBm @ 12Mbps -74dBm @ 48Mbps -91dBm @ 5.5Mbps -87dBm @ 18Mbps -70dBm @ 54Mbps -90dBm @ 6Mbps -83dBm @ 24Mbp Super G: -71dBm @ 96Mbps -67dBm @ 108Mbps
Transmit Output Power (Typical)	802.11g : 19dBm +-2dBm @ 6~24Mbps 18dBm +-2dBm @ 36 Mbps 16dBm +-2dBm @ 48 Mbps 15dBm +-2dBm @ 54~108 Mbps 802.11b : 20dBm +-2dBm for all rates

Physical	
LED	RF Link activity
Interface	32-bit PCI V2.0 Interface
Antenna	Integrated built-in diversity Antenna
Dimensions (HxWxL)	6.3mm x 54mm x 118mm (0.30in x 2.13in x 4.65in)
Environmental	
Temperature Range	0°C to 50°C - Operating -40°Cto 70°C - Storage
Humidity (non-condensing)	5%~95% Typical

Appendix B – Regulatory Compliance Information

Radio Frequency Interference Requirements
This device complies with Part 15 of FCC Rules and Canada RSS-210. Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.
3. To comply with RF safety requirements, you must maintain a distance of 20 cm from the antenna when operating the device.
4. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Interference Statement
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules; these limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, (example – use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.